

May 18, 1955

AEC 778/5

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ATOMIC ENERGY COMMISSION

CLEAN WEAPONS

Note by the Secretary

The Acting Director of Military Application has submitted the attached letter from Drs. Bradbury and York for the information of the Commission.

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From <u>MRA 9-1 Radioactive Contamination</u> <u>from high yield weapons</u>

W. B. McCOOL

Secretary

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J. Diaz 1/27/86

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ENCLOSURE I

UNIVERSITY OF CALIFORNIA  
LOS ALAMOS SCIENTIFIC LABORATORY  
(Contract W-7405-ENG-36)  
P. O. BOX 1663  
LOS ALAMOS, NEW MEXICO

April 15, 1955

In Reply  
Refer To: Dir-1037

Brig. General K. E. Fields  
Director of Military Application  
U. S. Atomic Energy Commission  
Washington 25, D. C.

Dear General Fields:

Your letter of April 8, 1955 inquires as to the status of  
our present understanding and prospects with respect to so-called  
"clean" weapons.

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as "Secret" or "Confidential" and is hereby declassified  
pursuant to the provisions of Executive Order 11652.

[REDACTED]

[REDACTED]

The calculations we have made with respect to such models are, in general, very similar to those which, when applied to the models tested at Operation Castle

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Studies which have been made here to date have been concerned only with models which are geometrically similar to models presently being considered for stockpile

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With respect to the matter of a possible test in Redwing of such a device, we feel, as you know, that the list already available of objects which will require to be tested merely to meet demands specifically related to rather immediate military requirements is impressively long. We are consequently reluctant to consider adding to this list if that can be avoided.

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Although this proposal has received preliminary consideration, we are not yet in a position to lay down a design of such a device and it will require a rather favorable rate of progress to be able to prepare this test in time for Redwing. At the moment, however, we are rather optimistic about being able to do so.

Very truly yours, DOE ARCHIVES

/s/

N. E. Bradbury  
Director

ENCLOSURE II

25 April 1955  
CITE: BY 8308

THRU: Dr. H. A. Fidler  
San Francisco Operations Ofc, AEC

Col. Vincent G. Huston, Acting Chief  
Research Branch  
Division of Military Application  
U. S. Atomic Energy Commission  
1901 Constitution Avenue  
Washington 25, D. C.

RE: CLEAN WEAPON DEVELOPMENT

Dear Colonel Huston:

I - REQUIREMENT AND MEANING

A clean weapon is one in which the radioactive after-effects are reduced to a minimum. The need for such a weapon has been outlined and discussed in a number of places; for instance, in a letter of General Fields to Dr. York (2/9/55); a letter of Secretary Wilson to Admiral Strauss; and in discussion between the writer and Commissioners Libby, Murray and Von Neumann. DOE ARCHIVES

A purely thermonuclear bomb, exploded on the surface, would still give some local radioactive hazard due to induced activities produced in the ground (or water) by the neutrons which would inevitably escape. We have calculated that for the case of "average" dirt the local fallout intensities would be reduced. DELETED

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II - METHODS FOR PRODUCING CLEAN EXPLOSIONS

We know of two general methods for achieving such results.

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A - Simple Substitution Methods

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B -

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Enclosure II

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Sincerely,

HERBERT F. YORK, Director  
UCRL - Livermore

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